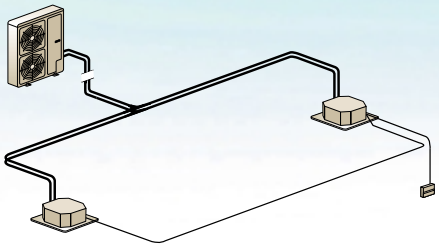
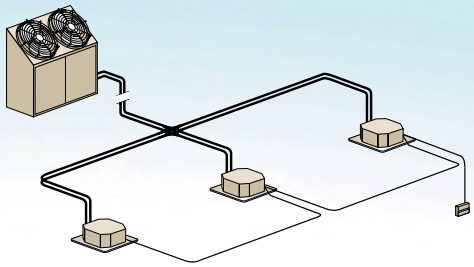
8 Series

FD *Multi-Systems*

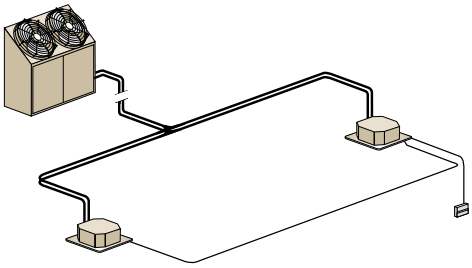
Heat Pumps Systems Commercial Applications



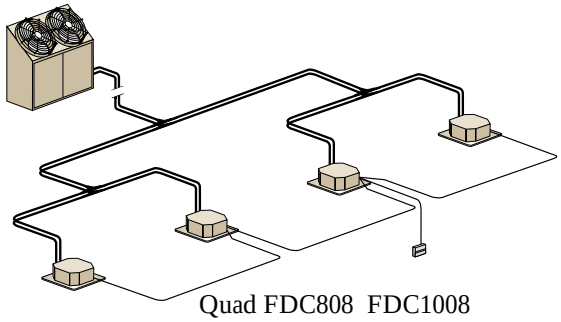
Twin FDC408 FDC508



Triple FDC808 FDC1008



Twin FDC808 FDC1008



Quad FDC808 FDC1008

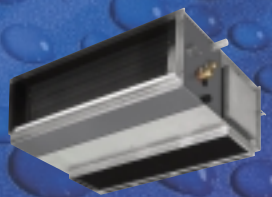
The MITSUBISHI FD Multi-Systems - ideal for large open plan areas from 60m^2 to 6000m^2. For example:

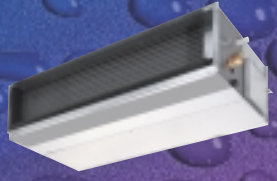
- **Retail stores**
- **Convenience stores**
- **Fitness clubs**
- **Open plan offices**
- **Large restaurants**
- **Workshop areas**
- **Night clubs**
- **Conference rooms**

The TWIN/TRIPLE/QUAD systems are easily installed using the pipe joint kits supplied, with the indoor units control boards addressed for master/slave arrangement. These systems offer a low cost solution compared to multiples of single split systems, or VRF systems.

The temperature is controlled by one sensor per system, with all connected units operating in the same mode, i.e. cooling or heating. Note: the Multi-Systems are not suitable where individual control is required at each terminal unit.

All FD split system air conditioners and heat pumps are provided with a connection port for easy wiring to an external time clock or BMS as required.





MITSUBISHI HEAVY INDUSTRIES, LTD.

FD *Multi-Systems Indoor Units*

FDT Cassette

The FDT is ideal for installation in a suspended ceiling. The units are compact and include a condensate lift pump (700mm lift). The panel colour is very light grey, which compliments most ceiling colour schemes. The design of the air outlets incorporates an 'anti-smudge' feature, reducing the discolouration of the ceiling adjacent to the air outlets.

Cassette units are sometimes installed in an open ceiling void, especially in retail sites, where the complete unit is on view.

FDFL Floor Mounted

The floor mounted units are ideal where the walls or ceilings are not suitable for mounting internal units. The front return/top discharge air flow allows excellent air circulation, whilst minimising draughts. The RCD controller can be fitted to the front of the unit, or wall mounted if required.

FDUR Ducted

The new FDUR ducted unit has interchangeable panels allowing return air into the rear of the unit, or to the bottom of the unit. A ceiling panel is available for the bottom return option. A return air filter is included in both configurations.

The Twin/Triple/Quad ducted systems can reduce the cost of ductwork, and overcome the problems of obstructions, such as beams, in the ceiling void.

Electrical Connection

The mains power supply is connected first to the outdoor unit (3 phase). The connection to the 'master' indoor unit is 6 wires (including earth), and from the master unit 3 wires (including earth) to each of the 'slave units'.

The RCD remote controller is wired (3 wires) to the XYZ terminals on the master unit, and connected in parallel to the XYZ terminals on the slave units. There are dip switches on the indoor unit control boards which must be set to either master or slave.

Remote Control

The RCD wired remote control is a full function controller, with the option of eliminating various displays to provide the client with a 'Simplified Control' if required. Two controllers can be used as a 'Master/Slave' arrangement.

Alternative Sensor

The RCD includes an additional temperature sensor, which can be used as an alternative to the unit's return air sensor. This is especially useful where several units are grouped together, or for multi-split installations.

MITSUBISHI HEAVY INDUSTRIES, LTD.

FD *Multi-Systems Refrigerant Piping*

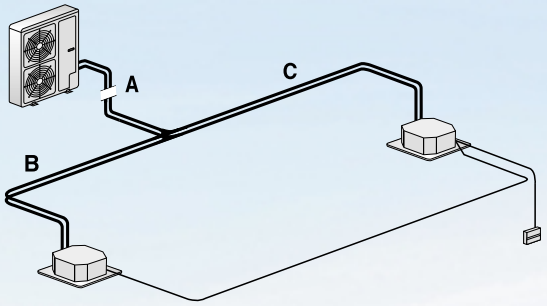
Height difference (all systems)

Outdoor unit above	max. height difference is 30m
Outdoor unit below	max. height difference is 15m
Difference between indoor units	max. height difference is 4m

Pipe length limitations

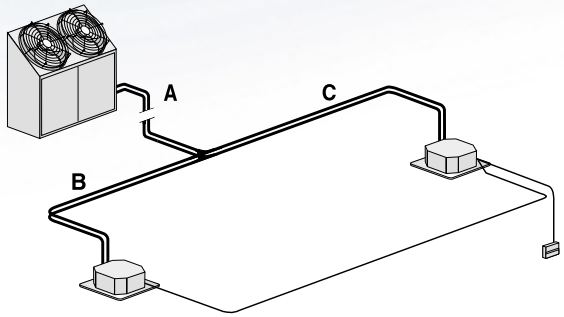
Twin Systems 408 & 508

A = main piping, B = branch piping, C = branch piping	
A + B + C	Maximum is 50 metres
Difference between B & C	No more than 10 metres
B	Maximum is 30 metres
C	Maximum is 30 metres



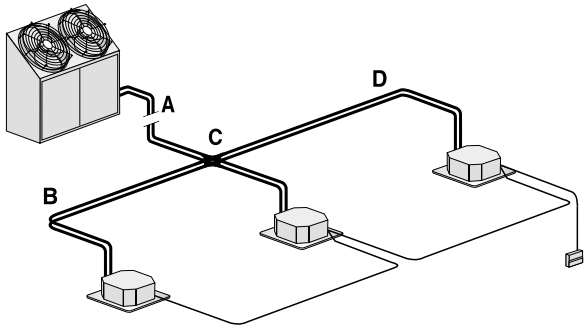
Twin Systems 808 & 1008

A = main piping, B = branch piping, C = branch piping	
A + B	Maximum is 50 metres
A + C	Maximum is 50 metres
Difference between B & C	No more than 10 metres
B	Maximum is 30 metres
C	Maximum is 30 metres



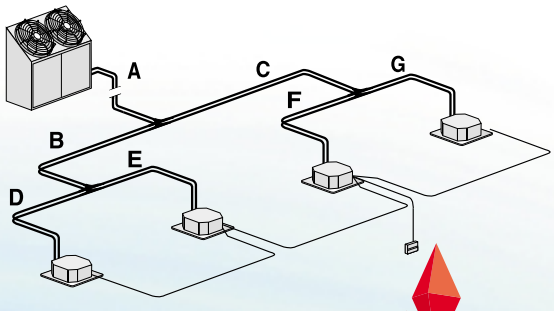
Triple Systems 808 & 1008

A = main piping, B, C & D = branch piping	
A + B	Maximum is 50 metres
A + C	Maximum is 50 metres
A + D	Maximum is 50 metres
Difference between B / C / D	No more than 10 metres
B, C, or D	Maximum is 30 metres



Quad Systems 808 & 1008

A = main piping B & C = branch piping from first branch to secondary D, E, F, & G are secondary piping from second branches to indoor units	
Outdoor unit to furthest indoor unit	Maximum is 50 metres
B + C	No more than 15 metres
D + E + F + G	No more than 50 metres
First branch to furthest indoor unit, e.g. C + G	No more than 30 metres



Outdoor Heat Pump Units

FDC408 & 508 are twin fan compact units with scroll compressors. These units are available for use with R22 or R407C.

The pipe terminations and connection valves are inside the casing, allowing the pipe entry to be installed from the back, side, front or bottom. The specification includes low ambient control.

FDC808 & 1008 are similar in style to the KX-2 VRF outdoor units, having twin fans discharging at an angle. This design allows installation in confined spaces, and reduces the footprint size of the unit. The depth is only 600mm. Access for routine service and maintenance is from the front only, and units can be installed side by side. The angled fan allows the unit to be installed within a building, with a suitable duct directing the discharge air to outside. In this situation the installer must make provision for the drainage of condensate, which will form during the heat pump operation.

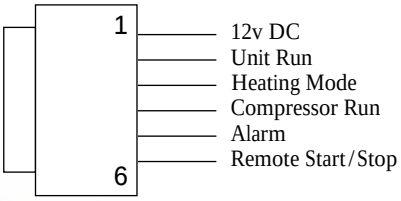
FDC408 FDC508 FDC808 FDC1008

6 Way Adaptor Conversion

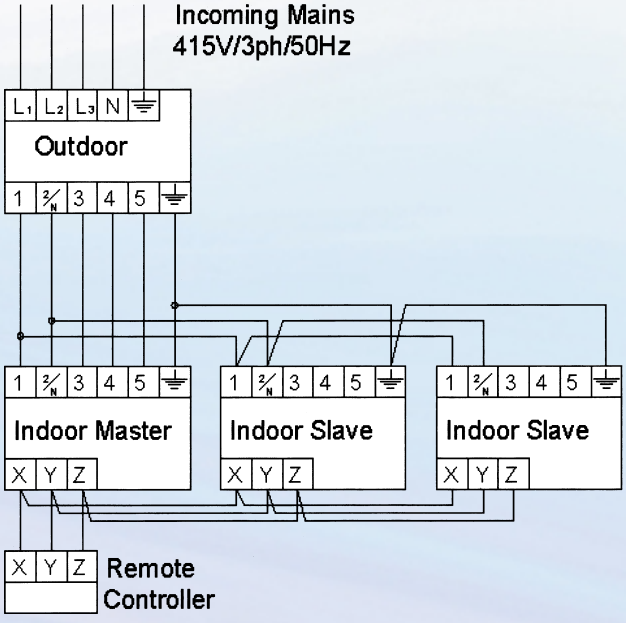
Part No. F6001 - (supplied free of charge)

- Time clock/remote switching on/off control
- Heating operation signal
- Cooling operation signal
- Common fault indication 12V for BMS

For connection to CnT socket on indoor PCB



Mains Electrical Wiring



Mains power supply is to outdoor unit first (3ph + N + E) via a suitable MCB. The outdoor unit is connected to the 'master' indoor unit by 6 wires (including earth).

The 'master' unit is connected by parallel wiring to each 'slave' unit by 3 wires (including earth). Note: control signal wiring between the units is mains power.

Wiring to remote controller is 3 wires (low voltage) to terminals XYZ of 'master' unit, and then in parallel to terminals XYZ of 'slave' units.

Outdoor Unit	FDC408HES	FDC508HES	FDC808HES	FDC1008HES
Cooling running current (A)	7.6	9.4	13.5	19.0
Heating running current (A)	7.0	9.0	11.2	16.0
Start current (A)	53	74	99	154
MCB rating (3Ph)	15A/ph	20A/ph	32A/ph	32A/ph

Indoor Units					
FDT	208	258	308	408	508
Running current (A)	0.5	0.5	0.6	1.2	1.4

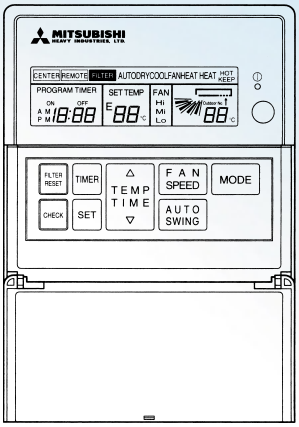
FDUR	208	258	308	408	508
Running current (A)	0.8	1.2	1.6	1.9	3.2

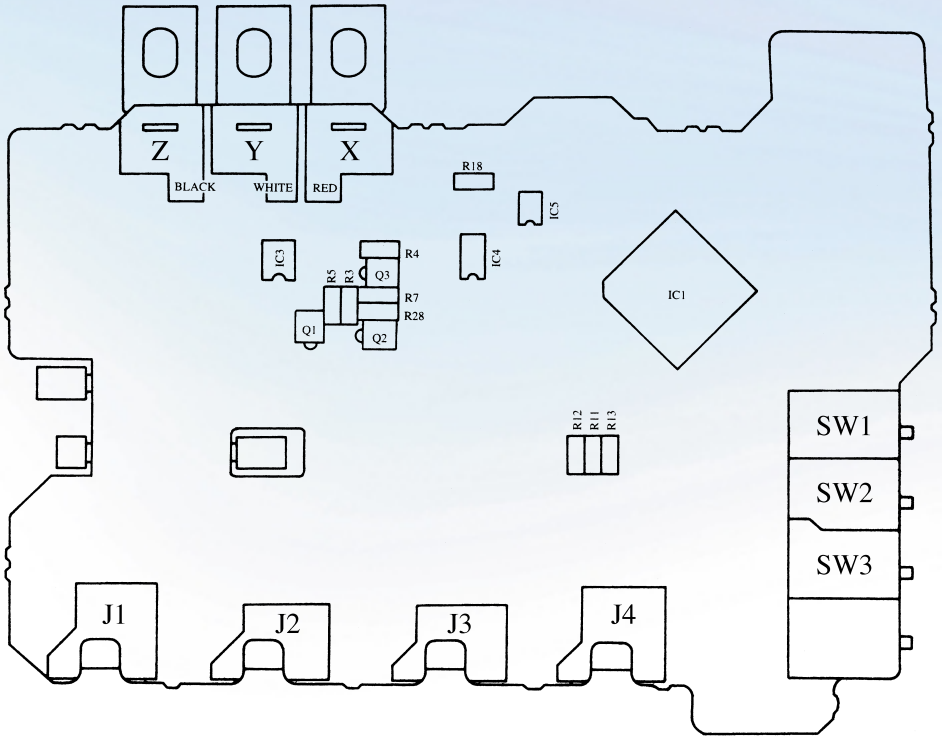
FDFL		258	308
Running current (A)		0.5	0.6

MITSUBISHI HEAVY INDUSTRIES, LTD.

RCD - Remote Controller Custom Settings

The RCD is a multi function remote control, providing the user with all the operational functions for cooling and heat pump systems. One the back of the RCD board is a series of dip-switches and jumper wires, which allow alteration and elimination of certain functions and displays. This allows the installer to customise, or simplify the controller to suit the application and the client's requirements.





Full details of the control and display options are detailed in the manufacturer's installation instructions.

Jumper		Function
J1	Link	Inlet temperature display - Enabled
	None	Inlet temperature display - Disabled
J2	Link	Fan display - 3 speeds
	None	Fan display - 2 speeds
J3	Link	Timer function - Enabled (Normal)
	None	Timer function - Disabled
J4	Link	Auto swing display - ON
	None	Auto swing display - OFF

Switch		Function
SW1	ON	Cooling only type
	OFF	Heat pump type
SW2	ON	Remote control sensor - Enabled
	OFF	Remote control sensor - Disabled
SW3	ON	Power outage compensation - ON
	OFF	Power outage compensation - OFF

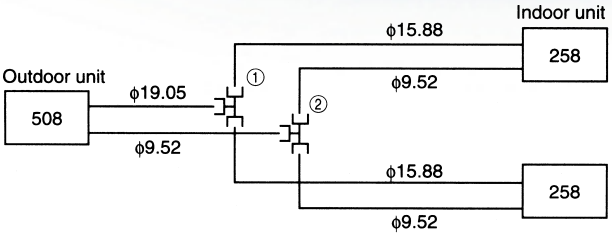
Unit Addressing

1 Use dip switch SW2 on the indoor circuit board to set the same remote controller communication address from both the Master and Slave units.
2 Set the indoor Slave units to Slave A to Slave C using the plural address switches SW2-3, and SW2-4.
3 After turning on the power, press the remote controllers "Air Conditioner No./Check" switch and then confirm that the connected indoor master and Slave are displayed on the remote controller.

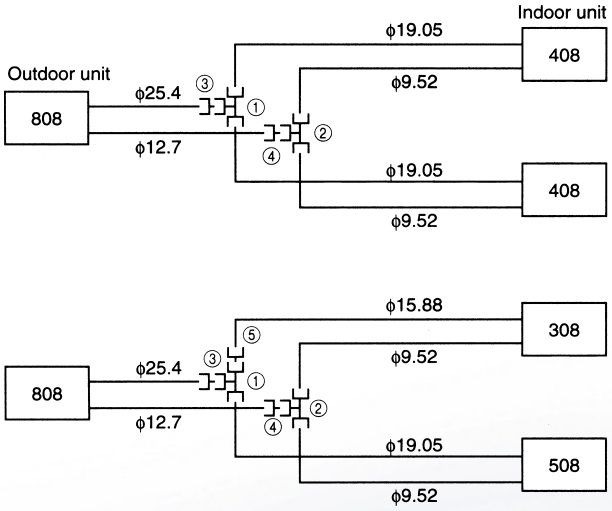
Master setting at time of factory shipment		Indoor Unit			
		Master	Slave A	Slave B	Slave C
Plural address switch	SW2-3	OFF	OFF	ON	ON
	SW2-4	OFF	ON	OFF	ON

Multi-Split Systems *'Refrigerant Pipe Sizing'*

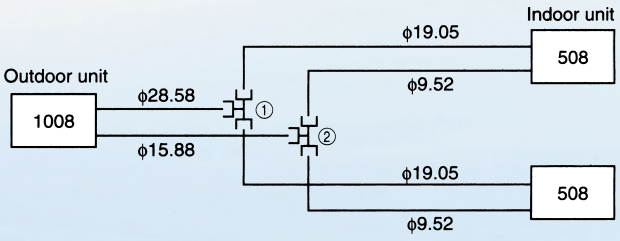
FDC 408/508 HES3 - Twin



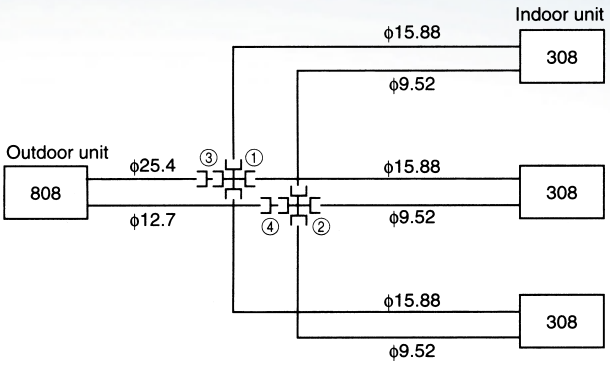
FDC 808 HES3 - Twin

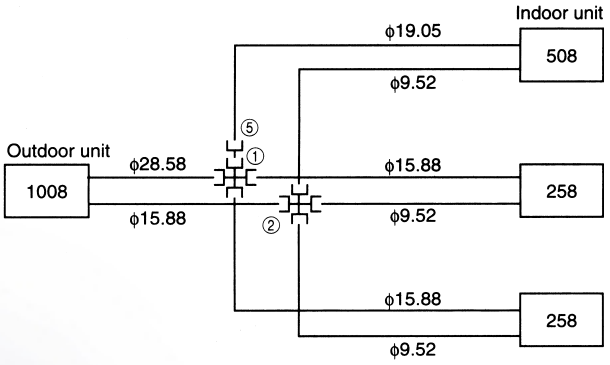


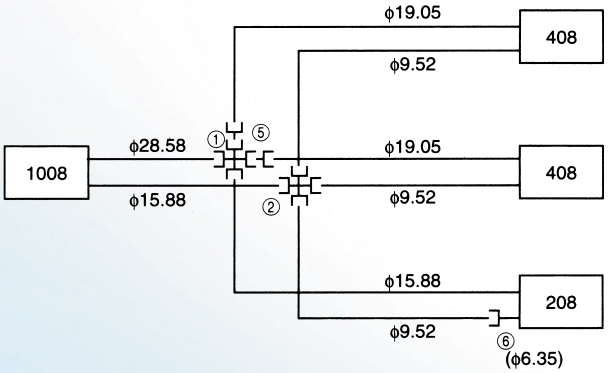
FDC 1008 HES3 - Twin

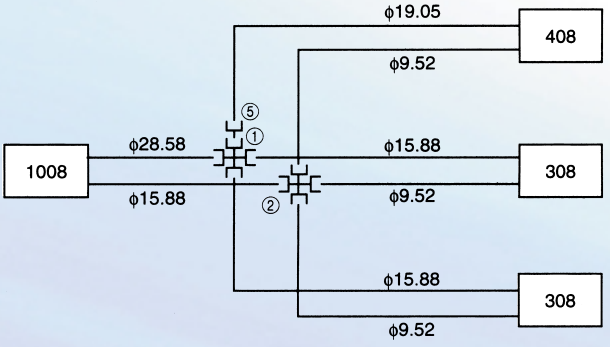


FDC 808 HES - Triple







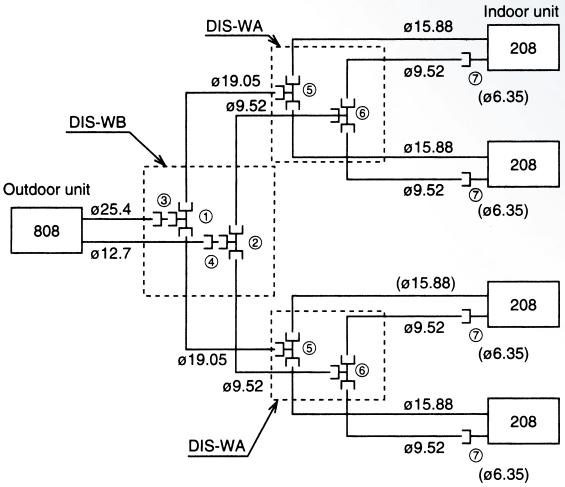


MITSUBISHI HEAVY INDUSTRIES, LTD.

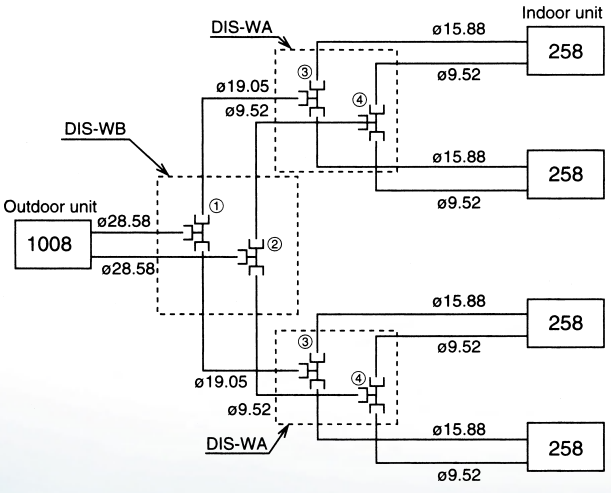
Pipe O.D. Sizes Metric / Imperial

Millimetres	Inches
6.35	1/4
9.52	3/8
12.70	1/2
15.88	5/8
19.05	3/4
22.20	7/8
25.40	1 1/8
28.58	1 1/8

FDC 808 HES - Quad



FDC 1008 HES - Quad



Additional Refrigerant Calculations

Outdoor units are factory charged with refrigerant, for the first 5 metres of pipe. Additional refrigerant is required to be added, in accordance with the manufacturers instruction.

Chart of shapes of branch piping parts (DIS-WA)

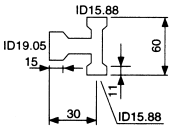
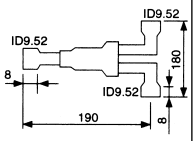
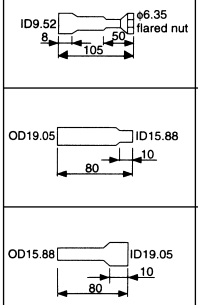
Gas pipe	Mark	Liquid pipe	Mark	Reducer	Mark
	1		2		3 4 5

Chart of shapes of branch piping parts (DIS-WB)

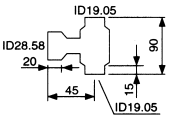
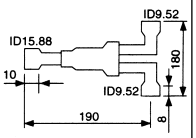
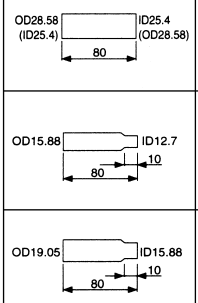
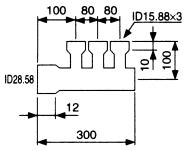
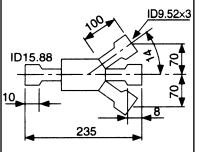
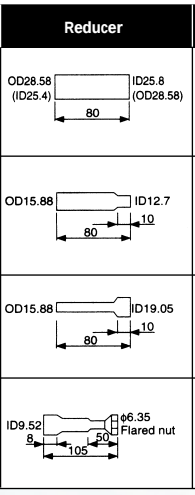
Gas pipe	Mark	Liquid pipe	Mark	Reducer	Mark
	1		2		3 4 5

Chart of shapes of branch piping parts (DIS-TB)

Gas pipe	Mark	Liquid pipe	Mark	Reducer	Mark
	1		2		3 4 5 6

Multi System Combinations

Outdoor Unit		Nominal Cooling	Nominal Heating	Indoor Units
FDC408HES	TWIN	10.0	11.2	2 x 208
FDC508HES	TWIN	12.5	14.0	2 x 258
FDC808HES	TWIN	20.0	21.2	2 x 408
FDC808HES	TWIN	20.0	21.2	1 x 308 1 x 508
FDC808HES	TRIPLE	20.0	21.2	3 x 308
FDC808HES	QUAD	20.0	21.2	4 x 208

Outdoor Unit		Nominal Cooling	Nominal Heating	Indoor Units
FDC1008HES	TWIN	25.0	28.0	2 x 508
FDC1008HES	TRIPLE	25.0	28.0	1 x 208 2 x 408
FDC1008HES	TRIPLE	25.0	28.0	2 x 258 1 x 508
FDC1008HES	TRIPLE	25.0	28.0	2 x 308 1 x 408
FDC1008HES	QUAD	25.0	28.0	4 x 258

Indoor Unit Data

Unit Ref.	Power Supply	FDT Casstte Dimensions mm H	W	D	Wt. KG	FDUR Ducted (excl.panel) Dimensions mm H	W	D	Wt. KG	FDFL Floor Mounted Dimensions mm H	W	D	Wt. KG
208	1Ph 5A	215	700	700	23	295	850	650	37				
258	1Ph 5A	260	840	840	30	295	850	650	43	700	1260	184	33
308	1Ph 5A	260	840	840	30	295	850	650	43	700	1260	184	33
408	1Ph 5A	320	840	840	34	350	1370	650	59				
508	1Ph 5A	320	840	840	36	350	1370	650	59				

Outdoor Unit Data

Unit Ref.	Power Supply	Dimensions mm H	W	D	Weight KG
FDC408HES	3Ph 15A/Ph	1050	920	340	90
FDC508HES	3PH 20A/Ph	1250	920	340	101
FDC808HES	3Ph 32A/Ph	1450	1350	600	185
FDC1008HES	3PH 32A/Ph	1450	1350	600	195

Technical information on all Mitsubishi Heavy Industries air conditioning products can be found on the 3D website at:

www.3dair.co.uk

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